REMARKS

The applicants appreciate the Examiner's thorough examination of the Application and request reexamination and reconsideration of the Application in view of the following remarks.

The subject invention results from the realization that an improved isolation system with analog communication across an isolation barrier, which can accommodate both ADSL and POTS and can use transformers or capacitors, is achieved with a novel isolation barrier circuit. The isolation barrier circuit has at least one isolation element, a digital to analog circuit with an analog output connected to the isolation barrier and an input for receiving an input digital signal to be communicated across the isolation barrier. An analog to digital circuit has an input coupled to the analog output of the isolation barrier circuit for providing a digital output signal. It was further realized that performance could be enhanced by shaping the analog signal to be transmitted through the isolation barrier so that it exhibited a constant signal average.

Claims 1-7, 13-16 and 21-25 stand rejected under 35 U.S.C. §103(a) as allegedly being obvious in light of U.S. Patent No. 5,550,993 to Ehlig et al in view of U.S. Patent No. 4,539,552 to Davis et al. Applicant has amended claim 1 and added claims 26-32 to specify that either an encoder or an analog modulator provides the constant average output signal. Support for these amendments can be found in the specification at page 8, line 4 to page 10, line 3 and page 12, lines 13 to 22.

Ehlig shows in Fig. 10 a digital to analog (D/A) converter used with a data access arrangement (DAA). The output of the DAA can be fed to an analog to digital converter

(A/D). However, Ehlig et al. does not describe the construction of the DAA nor its components. Moreover, Ehlig et al. does not teach, disclose or suggest that the signal supplied to the DAA is a constant average signal, as claimed by the applicants.

Ehlig et al. also does not teach, disclose or suggest a digital to analog circuit having either an encoder circuit or an analog modulator circuit for providing a constant average signal, or means for doing the same as recited in amended independent claims 1 or 26 or new independent claim 32.

Finally, Ehlig et al. does not teach disclose or suggest first and second digital to analog circuits configured to provide a constant average analog output signal to a first side and a second side, respectively, of an isolation barrier, as claimed by Applicants in independent claim 21. Fig. 18 of Ehlig et al., which the Examiner cites, shows only D/A 785 that transmits to a first side of DAA 787, but not a second D/A that transmits to a second side of DAA 787.

To overcome some of the deficiencies of Ehlig et al., the Examiner combines it with Davis et al. which shows a digital to analog converter.

In response to Applicants' argument in the Response dated August 13, 2004 that the lack of a description of Ehlig et al.'s D/A circuit construction is not an appropriate teaching, motivation, or suggestion to combine it with Davis et al., the Examiner states that "the knowledge of one of the ordinary skill in the art comes into play to fulfill the lack of details of the Ehlig et al's D/A circuit construction." See the Office Action dated December 2, 2004 at ¶5. However, the Examiner has not indicated what this knowledge is, and as such the Examiner fails to provide any evidence of knowledge that would provide

to combine Ehlig et al. with Davis et al. Rather, the Examiner again indicates that the lack of details in Ehlig et al.'s D/A circuit construction allegedly provides the motivation to combine with Davis et al. without providing any reason why one skilled in the art would not look more closely at the technology for the Ehlig et al. patent itself. Clearly the Examiner is combining references in hindsight.

Moreover the Examiner provides no evidence of why one of ordinary skill in the art would choose a D/A converter that provides a constant average signal rather than choose a typical D/A converter that does not include such functionality. An examiner can satisfy the burden of showing obviousness of the combination "only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references". See *In re Sang Su Lee, 277 F. 3d 1338, 61 USPQ2d 1430* (Fed. Cir. 2002) (emphasis added). The Examiner, however, fails again to provide either an "objective teaching" or "knowledge generally available to one of ordinary skill in the art" and again asserts that the lack of knowledge itself provides the motivation, which it does not.

Moreover, Neither Ehlig et al. or Davis et al. teach, disclose or suggest a digital to analog circuit that includes either an encoder circuit or an analog modulation circuit to provide to a constant average analog output signal, as claimed by Applicants. Thus, even if the combination of Ehlig et al. and Davis et al. were proper, the combination does not produce the invention as claimed by the Applicants.

Claim 1 of the subject application recites: “An isolation system with analog communication across an isolation barrier comprising: an isolation barrier circuit having at

least one isolation element; a digital to analog circuit configured to provide a constant average analog output signal to the isolation barrier and having an input for receiving an input digital signal to be communicated across the isolation barrier, said digital to analog circuit including an encoder circuit responsive to said input digital signal to provide a digital signal, and a digital to analog converter responsive to said digital signal to provide to said isolation barrier said constant average analog output signal; and an analog to digital circuit having an input coupled to the analog output of the isolation barrier circuit for providing a digital output signal." (Emphasis added.) Neither Ehlig et al. or Davis et al. teaches, discloses or suggests a digital to analog circuit that includes an encoder circuit to provide a constant average analog output signal to an isolation barrier circuit. Moreover, since there is no motivation to combine Ehlig et al. with Davis et al., the Examiner's combination of these references is improper.

Claim 21 of the subject application recites: "A bi-directional isolation system with analog communication across an isolation barrier comprising: an isolation barrier circuit having at least one isolation element; a first digital to analog circuit configured to provide a constant average analog output signal to a first side of the isolation barrier and having an input for receiving an input digital signal to be communicated across the isolation barrier; a first analog to digital circuit having an input coupled to the first side of the isolation barrier circuit; a second digital to analog circuit configured to provide a constant average analog output signal to a second side of the isolation barrier and having an input for receiving an input digital signal to be communicated across the isolation barrier; and a second analog to digital circuit having an input coupled to the second side of the isolation

barrier circuit. As described above, Ehlig et al. and Davis et al., either alone or in combination, do not teach disclose or suggest first and second digital to analog circuits configured to provide a constant average analog output signal to a first side and a second side, respectively, of an isolation barrier.

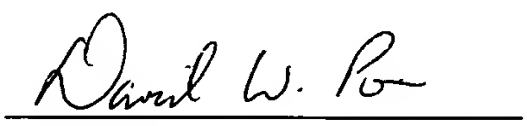
Accordingly, claims 1-7, 13-16 and 21-25 are patentable over the prior art. Applicants respectfully request that the Examiner withdraw the rejection of these claims under 35 U.S.C. §102(b).

Claims 10, 12 and 19-20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Ehlig et al. in view of Davis and in view of U.S. Patent No. 5,500,895 to Yurgelites. Also, claims 8-9 and 11 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Ehlig et al. in view of Davis and in view of either U.S. Patent No. 6,587,560 to Scott et al. or U.S. Patent No. 6,081,586 to Rahamin et al. Also, claim 12 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Ehlig et al. in view of Davis and in view of U.S. Patent No. 4,387,273 to Chea, Jr. However, none of the Yurgelites, Scott, Rahamin or Chea, Jr. references discloses or suggests a digital to analog circuit configured to provide a constant average analog output signal to an isolation barrier. Since each of these claims rejected under 35 U.S.C. §103(a) depend from claim 1, they are thus patentable for the reasons stated above and further patentable because these dependent claims contain one or more additional features.

Each of the Examiner's rejections has been addressed or traversed. Accordingly, it is respectfully submitted that the application is in condition for allowance. Early and favorable action is respectfully requested.

If for any reason this Response is found to be incomplete, or if at any time it appears that a telephone conference with counsel would help advance prosecution, please telephone the undersigned or his associates, collect in Waltham, Massachusetts, at (781) 890-5678.

Respectfully submitted,



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